

ABSTRACT OF THE DISCLOSURE

Silica grain of desired properties and size is created in a vacuum chamber. Fine silica powder is injected in the chamber or silica powder is formed in situ by combusting precursors. A plasma is formed centrally in the chamber to soften the silica powders so that they stick together and form larger grains of desired size. The grains are collected, doped, fused and flowed into tubes or rods. A puller pulls the tube or rod through a chamber seal into a lower connected vacuum chamber. The tube or rod is converted to rods and fibers or plates and bars in the connected chamber. Fused silica in a crucible tray is subjected to ultrasound or other oscillations for outgassing. Gases are removed by closely positioned vacuum ports.